

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

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(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, said trench having an upper end portion adjacent the circuit formation surface of the semiconductor substrate;

(c) oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench;

(d) burying a buried insulating film into said trench so oxidized;

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(e) after burying said buried insulating film, oxidizing said semiconductor substrate so as to provide a curvature of the upper end portion of the trench;

(f) removing said buried insulating film formed on said oxidation prevention film;

(g) eliminating said oxidation prevention film formed on said semiconductor substrate; and

(h) after said eliminating, forming a gate oxide film.

2. (Twice Amended) A method of fabricating a semiconductor device comprising the steps of:

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- (a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;
 - (b) forming shallow trenches having a radius of curvature at corners in a desired position of the circuit formation surface of said semiconductor substrate;
 - (c) forming trenches having a predetermined depth to said shallow trenches having a radius of curvature so formed;
 - (d) oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches;
 - (e) burying a buried insulating film into said trenches so oxidized;
 - (f) oxidizing the semiconductor substrate after burying said buried insulating film, so as to increase the radius of curvature of the shallow trenches;
 - (g) removing said buried insulating film formed on said oxidation prevention film;
 - (h) eliminating said oxidation prevention film formed on said semiconductor substrate; and
 - (i) after said eliminating, forming a gate oxide film.
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4. (Twice Amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming trenches having a predetermined depth at desired positions of the circuit formation surface of said semiconductor substrate, said trenches having upper end portions not covered by said oxidation prevention film;

(c) oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches;

(d) burying a buried insulating film into said trenches so oxidized;

(f) oxidizing said semiconductor substrate after said buried insulating film formed on said oxidation prevention film is removed, said upper end portions not covered by said oxidation prevention film being oxidized;

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate; and

(h) after said oxidizing said semiconductor substrate, forming a gate oxide film.

5. (Twice Amended) A method of fabricating a semiconductor substrate comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming shallow trenches having a radius of curvature at corners in desired positions of the circuit formation surface of said semiconductor substrate;

(c) forming trenches having a predetermined depth in said shallow trenches having a radius of curvature;

(d) oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches;

(e) burying a buried insulation film into said trenches so oxidized;

(f) removing said buried insulating film formed on said oxidation prevention film;

(g) oxidizing said semiconductor substrate after said buried insulating film formed on said oxidation prevention film is removed, so as to increase the radius of curvature of the shallow trenches at said corners;

(h) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate; and

(i) after said oxidizing said semiconductor substrate, forming a gate oxide film.

9. (Twice Amended) A method of fabricating a semiconductor device comprising the steps of:

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(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate,

(b) forming trench regions in said substrate from said circuit formation surface thereof,

(c) performing a first oxidation to form an oxide film on said trench regions formed in step (b), and

(d) forming an insulating film inside said oxidized trench regions so as to completely fill them,

characterized by further steps of:

(e) performing a second oxidation to selectively oxidize an opening side of said completely filled trench regions in said substrate; and

(f) after performing the second oxidation, forming a gate oxide film.

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10. (Amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, the trench having

an upper end portion thereof extending to the circuit formation surface of the semiconductor substrate;

(c) oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench;

(d) burying a buried insulating film into said trench so oxidized;

(e) after burying said buried insulating film, providing the upper end portion of said trench with a curvature;

(f) removing said buried insulating film formed on said oxidation prevention film; and

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate.

11. (Amended) A method of fabricating a semiconductor device according to claim 10, wherein said providing the curvature includes thermally oxidizing the upper end portion of the trench.

12. (Amended) A method of fabricating a semiconductor device according to claim 10, wherein said providing the curvature includes forming bird's beaks at the upper end portion of the trench.

13. (Amended) A method of fabricating a semiconductor device according to claim 10, wherein said providing the curvature is performed such that an angle (θ) between the circuit formation surface of the semiconductor substrate and a side surface of the semiconductor substrate forming the trench is within a range of $90^\circ < \theta < 180^\circ$.

14. (Amended) A method of fabricating a semiconductor device according to claim 10, wherein said providing the curvature is performed after said removing said buried insulating film.

15. (Amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, the trench having an upper end portion thereof extending to the circuit formation surface of the semiconductor substrate;

(c) oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench, so as to provide the upper end portion of said trench with a curvature;

(d) burying a buried insulating film into said trench so oxidized;

(e) removing said buried insulating film formed on said oxidation prevention film; and

(f) removing said oxidation prevention film formed on the circuit formation surface of said circuit substrate

16. (Amended) A method of fabricating a semiconductor device according to claim 15, wherein said oxidizing said trench portion forms a bird's beak at the upper end portion of said trench, so as to provide said curvature.

17. (Amended) A method of fabricating a semiconductor device according to claim 15, wherein said oxidizing is a thermal oxidation, so as to provide said curvature. --.

Add the following new claims:

-- 18.³⁰ A method of fabricating a semiconductor device according to claim

1, wherein said buried insulating film is made of silicon oxide.

19.⁼³¹ A method of fabricating a semiconductor device according to claim

18, wherein the silicon oxide is a deposited silicon oxide.

20.⁼³² A method of fabricating a semiconductor device according to claim

19, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

21.⁴ A method of fabricating a semiconductor device according to claim

(2) wherein said buried insulating film is made of silicon oxide.

22.⁴ A method of fabricating a semiconductor device according to claim

21, wherein the silicon oxide is a deposited silicon oxide.

23. A method of fabricating a semiconductor device according to claim

22, wherein said deposited silicon oxide is deposited by chemical vapor

~~deposition or sputtering.~~

24. A method of fabricating a semiconductor device according to claim

4, wherein said buried insulating film is made of silicon oxide.

25. A method of fabricating a semiconductor device according to claim 24, wherein the silicon oxide is a deposited silicon oxide.

26. A method of fabricating a semiconductor device according to claim 25, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

27. A method of fabricating a semiconductor substrate according to claim 5, wherein said buried insulating film is made of silicon oxide.

28. A method of fabricating a semiconductor substrate according to claim 27, wherein the silicon oxide is a deposited silicon oxide.

29. A method of fabricating a semiconductor substrate according to claim 28, wherein said deposited silicon oxide is deposited by chemical vapor

~~deposition or sputtering.~~

30.⁼¹⁸ A method of fabricating a semiconductor device according to claim 9, wherein said insulating film is made of silicon dioxide.

31. ^{= 19} A method of fabricating a semiconductor device according to claim 30, wherein the silicon oxide is a deposited silicon oxide.

32. ^{= 20} A method of fabricating a semiconductor device according to claim 31, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

33. ^{= 30 = 18} A method of fabricating a semiconductor device according to claim 10, wherein said buried insulating film is made of silicon oxide.

34. ^{= 31 = 19} A method of fabricating a semiconductor device according to claim 33, wherein the silicon oxide is a deposited silicon oxide.

35. ^{= 32 = 20} A method of fabricating a semiconductor device according to claim 34, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

36. A method of fabricating a semiconductor device according to claim 15, wherein said buried insulating film is made of silicon oxide.

37. A method of fabricating a semiconductor device according to claim 36, wherein the silicon oxide is a deposited silicon oxide.

38. A method of fabricating a semiconductor device according to claim 37, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering. --.
